

Amendment to the Claims:

1. (Cancelled)

2. (Currently Amended) ~~An~~ A magnetic resonance imaging (MRI) system as claimed in claim 1, comprising:

an object space for receiving an object to be examined;

a main magnet system for generating a main magnetic field in the object space;

a gradient magnet system for generating gradients of the main magnetic field in the object space;

a plurality of transmit coils located adjacent the object space;

a coil drive circuit for generating a plurality of individual coil drive signals, the individual coil drive signals being generated by the coil drive circuit so as to have a substantially identical shape;

controllable means for individually setting the amplitude and/or phase of each of said coil drive signals; and

a controller for controlling said controllable means, wherein said controller has a user input for receiving a user input signal defining or selecting a volume of interest within said object space.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Currently Amended) ~~An~~ A magnetic resonance imaging (MRI) system as claimed in claim 3, comprising:

an object space for receiving an object to be examined;

a main magnet system for generating a main magnetic field in the object space;

a gradient magnet system for generating gradients of the main magnetic field in the object space;

a plurality of transmit coils located adjacent the object space;
a coil drive circuit for generating a plurality of individual coil drive signals, the individual coil drive signals being generated by the coil drive circuit so as to have a substantially identical shape, in said coil drive circuit comprising
a signal generator for generating a basic signal, and
a plurality of coil drive branches for driving a respective one of the plurality of coils, said drive branches being coupled to receive input signals derived from or identical to said basic signal;
controllable means for individually setting the amplitude and/or phase of each of said coil drive signals; and
a controller for controlling said controllable means;
wherein each coil drive branch comprises a controllable amplifier.

7. (Cancelled)

8. (Currently Amended) ~~An~~ The MRI system as claimed in claim 6, wherein said controller is coupled to control said controllable amplifier and/or said ~~a~~ controllable phase shifter.

9. (Currently Amended) ~~An~~ The MRI system as claimed in claim 8, wherein the system also comprises:

a memory, associated with said controller, for storing information on the field characteristics of each coil and for storing information on field distortions caused by an object in the object space.

10. (Currently Amended) ~~An~~ The magnetic resonance imaging (MRI) system as claimed in claim 9, comprising:

an object space for receiving an object to be examined;

a main magnet system for generating a main magnetic field in the object space;

a gradient magnet system for generating gradients of the main magnetic field in the object space;

a plurality of transmit coils located adjacent the object space;
a coil drive circuit for generating a plurality of individual coil drive signals, the individual coil drive signals being generated by the coil drive circuit so as to have a substantially identical shape, said coil drive circuit comprising a signal generator for generating a basic signal and a plurality of coil drive branches for driving a respective one of the plurality of coils, said drive branches being coupled to receive input signals derived from or identical to said basic signal, each coil drive branch comprising a controllable amplifier;

a memory, associated with said controller, for storing information on the field characteristics of each coil and for storing information on field distortions caused by an object in the object space;

- controllable means for individually setting the amplitude and/or phase of each of said coil drive signals; and

a controller for controlling said controllable means, said controller being coupled to control said controllable amplifier and/or a controllable phase shifter;

wherein said controller is designed to:

[-] receive input information at an input, said input information relating to a type of object in the object space and a selection of an object part;

[-] read from said memory individual field characteristics of the individual transmit coils as well as field distortion characteristics of the object in the object space;

[-] control the settings of said controllable amplifier and/or the settings of said controllable phase shifter, taking into account said information received at said input as well as said information read from said memory, in such a way that, an overall magnetic field of improved homogeneity, is obtained in a predetermined volume of interest corresponding to said object part.

11. (Currently Amended) ~~An~~ The MRI system as claimed in claim 10, wherein said controller is designed to control the settings of said controllable amplifier and/or the settings of said controllable phase shifter in such a way that an

overall magnetic field has a locally substantially constant magnitude at a location within said volume of interest, preferably at the center of said volume of interest.